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AUTHOR Stowitschek, Joseph J.; And Others
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ABSTRACT

This paper describes a data-based screening tool for identifying at-risk students. It is intended to complement referral and other qualitative means of identification. The Computerized Risk Index Screening Program (CRISP) is an application of a commonly available data management program that: (1) provides a school-based screening system; (2) can be tailored to local needs and characteristics; (3) is capable of reliably and unobtrusively "flagging" at-risk students; and (4) could be used by school office staff. In setting up CRISP, the user must identify risk factors to be tracked, determine the criterion or cut-off point for each risk factor, and set a value or weight on each risk factor relative to the other factors. High absence rate, low grades, and poor conduct are included as standard risk factors, but any factor for which data are quantifiable and readily accessible to the school may be added. The computer program: (1) produces an index score for each student listed; (2) calculates totals and averages for each risk factor; (3) allows the user to sort (rank order) the data by risk factor; (4) can provide a variety of statistical calculations; and (5) can provide several types of printed reports. Field testing of CRISP is under way. In a preliminary tryout, CRISP selected 15 of 16 students previously identified by teachers as being at risk in a class of 34 kindergartners. A sample screening and tracking worksheet is included. (SV)

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A COMPUTERIZED RISK INDEX SCREENING PROGRAM FOR AT-RISK STUDENTS

Joseph J. Stowitschek
James T.H. Bulteel
Linda S. Pepler
Albert J. Smith

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A Computerized Risk Index Screening Program

for At-Risk Students

Which students are at-risk of dropping out of school, or are otherwise in danger of obtaining inadequate benefit from public education? Ask any teacher and he or she has definite opinions about who those students are. But what is used as the basis for that determination? Apparently, many factors come into play and they may differ drastically from one student to the next. The literature is replete with studies listing multitudes of characteristics of dropouts and dropout-prone students; categories of social, educational, economic, health, and psychological characteristics being predominant. Some characteristics, such as of children who are shy, withdrawn, or otherwise nonresponsive, are seldom used by teachers who seem more prone to identify students who pose behavior problems.

Which characteristics should we use? It depends partially on one's purpose and partially on the utility of the characteristic. One shortcoming of the literature is that, short of those which are obvious, there are few benchmarks offered by which one may determine when a "characteristic" becomes predictive of dropping out. Another problem is that many charazcteristics, because of their "genotypic" nature, have little utility for educators beyond describing the population of dropouts. For example, if a student comes from a poor family, that condition is not likely to change, unless someone wins the lottery or the family is endowed by an anonomous philanthropist. On the other hand, phenotypic characteristics, those which are changeable, have considerably greater potential for both predicting and monitoring riskness, not to mention less propensity for bias.

While one must take care to avoid the potentially deleterious effects of labeling, it is also essential to be able to define a problem and determine who is affected by the problem in order to be able to do something about it. While referrals and declarations of teacher concerns are typical ways of doing this, they may happen only after the problem is well developed and, because of their subjective nature, may exclude those who should have been included and vice versa. Wouldn't it make more sense to use a more objective screening system in conjunction with referrals as a matter of course if one were available that had demonstrated utility?

Many school districts have large mainframe computer systems which log numerous student characteristics. Their problems for screening purposes is that they are designed for group processing of information, not for individuals, are district-additive and seldom school-specific, usually have an information lag time of

one month or more and are often not user friendly for the typical teacher or educational case manager.

A Computerized Risk Index Screening Program (CRISP)

CRISP is an application of a commonly available data management program because it was determined what was needed was 1) a building-based screening system that was, 2) tailored to local needs and characteristics, 3) capable of reliably and unobtrusively "flagging" students who may potentially be at-risk, and 4) could be used with school office staff. CRISP was developed as part of a project which is developing an interprofessional educational case management model for at-risk students. Case managers coordinate teams and serve as mentors for students at one or more school sites. They are the managers of screening data but have little time to locate and enter it. So, the program is simple enough that school clerical personnel or hourly staff can perform that function. The management function consists of setting up the site-specific risk variables (termed risk factors) in the program and analyzing results from it. the data entry function consists of locating and collecting the data on those variables and entering that data for each student.

Setting Up CRISP. For all students to be included in CRISP, the user must identify risk factors to be tracked, determine the criterion or cut-off point for a risk factor and set a value or weight on each risk factor relative to the other factors (optional).

1. Identify Risk Factors: School staff and other participating professionals meet and consider the risk factors that are most common and concern them the most. Because high absence rates, low grades and poor conduct were identified as risk factors which students in all participating school districts held in common, they are included as standard factors. Also, data on them can be readily retrieved from school files. Additional risk factors identified should be those which are quantifiable and for which data is accessible within the constraints of confidentiality. The user may add several risk factors. However, the information becomes less meaningful when more than 10 risk factors are used (Figure 1).

2. Determine Cut-Off Points. For Each risk factor, a criterion or cut-off point is set and used in the computer program to decide when that risk factor is in operation. For many risk factors, such as "special education eligible," the cut-of point is 1 for yes (0 for no). Initially, cut-off points for risk factors such as absence rates are set somewhat arbitrarily (e.g., 5 or more absences per ten week school term), and adjusted as their use indicates (Figure 1).

3. Assign Weights. These weights allow the user to give relative values to risk factors which may be considered to differ in their importance. The weight range is from 1 to 3. The computer program uses these weights across risk factors to calculate an overall risk index (Figure 2).

   A note of caution is in order regarding the risk index. Its only purpose should be to help synthesize information across several risk factors, followed by more indepth assessment. It should not be used as a decision quotient in and by itself. The user should make the decision independently of any risk factor summary produced with the computer program.

Enter Data. In some cases, data from the entire school enrollment are entered. The graduating class of the year 2000 was the focus of another school site. Whatever the focus, data that is already available to the school (school files or from teachers) should be the data of choice. Data is entered by listing the student roster in one column and the numerical scores for each student under the risk factor columns. The risk index is tallied automatically by the computer program as data is entered.

Analyze Results. The computer program gives results in four ways. First, it produces an index score for each student listed. Second, it calculates totals and averages for each risk factor. and the index. Third, it allows the user to sort (rank order) the data by risk factor. Fourth, the user may resort to the full analysis menu of the main program for a variety of calculations (e.g., standard deviation). The program print function allows the user to produce several types of reports (Figure 3). There are several other data management functions. For instance, once students are selected for further attention (a column is provided under which targeted students may be indicated by a "yes"), Those student's data may be patched into a separate file for separate analysis or reporting purposes.

Summary and Conclusions

A field test of CRISP is under way in a local school district. Results of CRISP will be compared to teacher's ratings of students on classroom performance, social and interpersonal variables. In a preliminary tryout, CRISP selected 15 of 16 students originally selected by teachers as being at-risk in a class of 34 kindergartners.

CRISP is a point-in-time screening tool. While separate files or reports representing two different points in time may be produced and compared visually, it is not a tracking system. The next project is to develop CRISP into a progress tracking system

that may be used to analyze and display results over time on a group of students for any given risk factor, or to produce a report on a given student for all risk factors.

An expert system utilizing artificial intelligence software is also on the drawing boards. The system would include an "expert advisor" to help case managers or other professionals to resolve problems in planning and implementing interprofessional case management services. These programs would be used in consort with each other to effect an integrated screening, tracking and consultation system usable under conditions of limited staff.

A data-based approach to planning for at-risk students is not intended to usurp referral or other qualitative means of communicating information about them, but to compliment them. The implications extend beyond the immediate educational uses of the data. A reliable means of demonstrating the need for, and the effects of educational interventions with at-risk youth is needed in order to influence those who direct funding sources and those who set and implement policy.

Figure Captions

Figure 1: Sample CRISP display of selected risk factors and cutoffs.

Figure 2: CRISP display menu for assigning weights to risk factors.

Figure 3: Sample CRISP printout.

Figure 4:

FIGURE 1

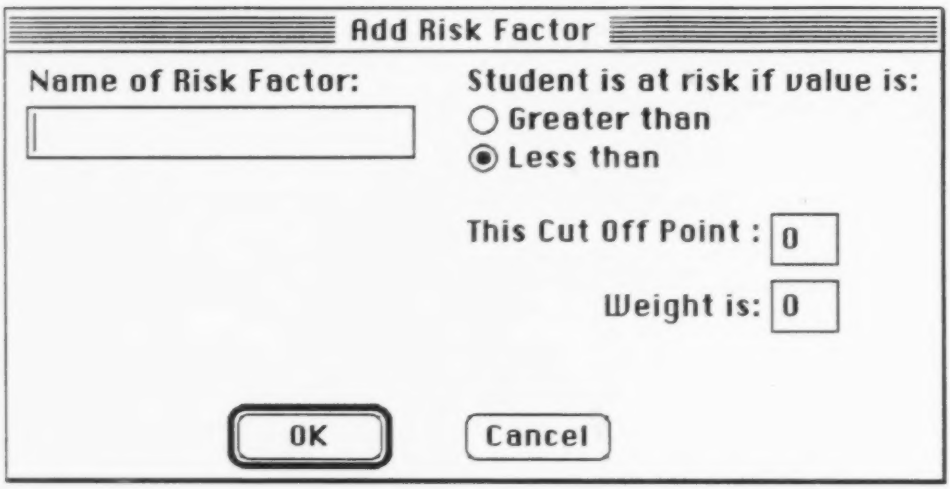
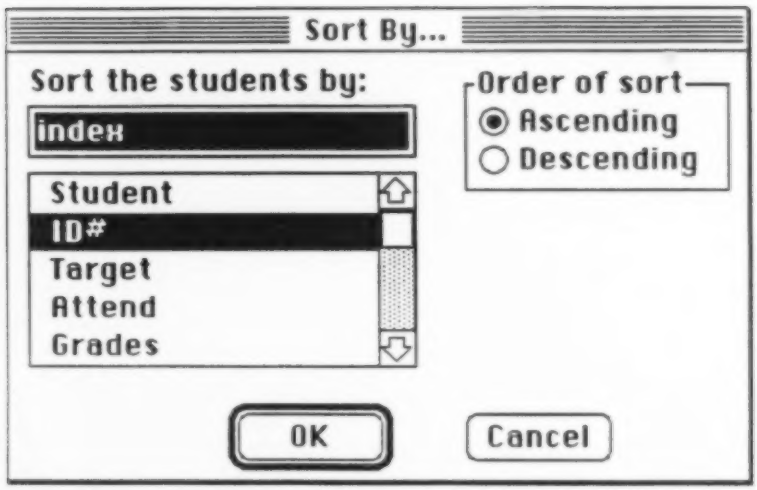

Add Risk Factor
Name of Risk Factor:
Student is at risk if value is:
Greater than
Less than
This Cut Off Point : 0
Weight is: 0
OK
Cancel

FIGURE 2



- Click on the risk factor that you want to sort by.
- Select "Order of Sort"
  Ascending puts lowest value first (A to Z and 1 to 10).
  Descending put the highest value first (Z to A and 10 to 1).
- Click the OK button.

	1	2	3	4	5	6	7	8	9	11	12	13	14	15	16	17	18
1	At Risk Student Screening and Tracking Worksheet																
2	School:									col		4	5	6	7	8	9
3	Year: 1989									cut off		4	5	0	3	20	29
4	Period: Fall First									weights		3	0	3	1	2	4
5	Group: ALL									direction		>	>	>	>	>	>
6												Calculated Data					
7	Student	ID#	Target	Attend	Grades	Conduc	Tardie	2Grade	3Grade	Index		Atte	Grad	Cond	Tard	2Gra	3Gra
8	MM	62783		1	10	0	0	30	30	6		0	0	0	0	2	4
9	AE	31379		6	9	0	0	41	41	9		3	0	0	0	2	4
10	SD	91580		7	0	0	0	0	0	3		3	0	0	0	0	0
11	CE	32480		0	3	3	0	15	15	3		0	0	3	0	0	0
12	DR	72882		0	0	0	0	0	0	0		0	0	0	0	0	0
13	WG	52981		0	0	2	0	0	0	3		0	0	3	0	0	0
14	TM	41782		4	0	0	0	0	0	0		0	0	0	0	0	0
15	DM	13180		1	0	0	0	0	0	0		0	0	0	0	0	0
16	MMc	61180		6	9	0	0	36	36	9		3	0	0	0	2	4
17	KN	80978		6	10	0	1	48	48	9		3	0	0	0	2	4
18	AaE	81878		3	10	1	0	48	48	9		0	0	3	0	2	4
19	PF	70578		7	8	0	0	36	36	9		3	0	0	0	2	4
20	GF	72378		0	6	0	0	27	27	2		0	0	0	0	2	0
21	DG	51782		0	1	0	1	5	5	0		0	0	0	0	0	0
22	JMc	12479		1	1	0	0	5	5	0		0	0	0	0	0	0
23	NJ	121879		4	2	0	3	7	7	0		0	0	0	0	0	0
24	MF	20480		1	2	0	0	8	8	0		0	0	0	0	0	0
25	BS	50180		2	7	0	0	29	29	2		0	0	0	0	2	0
26	JR	21781		0	4	0	1	0	0	0		0	0	0	0	0	0
27	LM	60381		0	3	0	0	15	15	0		0	0	0	0	0	0
28	SK	12181		0	1	3	0	5	5	3		0	0	3	0	0	0
29	TC	91080		6	2	1	0	10	10	6		3	0	3	0	0	0
30	JD	111082		5	3	4	1	15	15	6		3	0	3	0	0	0
31	NR	73082		3	1	6	1	5	5	3		0	0	3	0	0	0
32	JS	40682		6	1	0	2	5	5	3		3	0	0	0	0	0
33	TJS	71282		1	0	0	0	0	0	0		0	0	0	0	0	0
34	BJ	41583		6	14	0	0	52	52	9		3	0	0	0	2	4
35	CB	122482		5	1	0	2	5	5	3		3	0	0	0	0	0
36	GS	12382		0	0	0	0	0	0	0		0	0	0	0	0	0
37																	
38																	
39	COUNT									16		10	#NUM!	7	0	9	7
40	AVERAGE			2.793	3.7241	0.69	0.414	15.41	15.41	55%		34%	#NUM!	24%	0%	31%	24%

FIGURE 3